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LEUNG, JENNIFER A

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/231,791  
Filing Date: January 15, 1999  
Appellant(s): GUARINO ET AL.

**MAILED**  
**APR 04 2007**  
**GROUP 1700**

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David P. Emery  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed December 14, 2006 appealing from the Office action mailed March 17, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appeal No. 2003-1700, for the instant application, heard on January 8, 2004.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner:

The rejection of claims 1-10 under 35 U.S.C. 112, first paragraph.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,202,097

POUSSIN

04-1993

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poussin (US 5,202,097).

With regard to claim 1, Poussin discloses construction of an assembly having an unperforated cylindrical wall (Figure 1 (10)) coaxial to the gas outlet wall (Figure 1 (9)) in the catalytic bed (31), the unperforated cylindrical wall (10) extending from an upper end of the gas outlet wall (9) along a portion of the outlet wall (9) for a predetermined length in the catalytic bed, such that once the catalyst is loaded within said catalytic bed (31), at least a portion of the

Art Unit: 1764

unperforated cylindrical wall (10) remains below the upper level reached by the catalyst (see col. 7, lines 19-21: the unperforated cylindrical wall is immersed in the catalyst bed). Poussin further discloses a free-space between the gas outlet wall (9) and the unperforated wall (10) (see, for example, FIGs. 1 and 6). Poussin also discloses providing a capping means for closing an upper end of the free-space between the unperforated wall (10) and the gas outlet wall (9), in proximity of the upper end of the gas outlet wall, thereby preventing a bypass of the catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor.

Although Poussin does not expressly disclose that the unperforated cylindrical wall (10) covers the perforations of the gas outlet wall (9), it is noted that the figures of Poussin are schematic and do not demonstrate the sole locations of perforations in the tube. For instance, FIGs. 2 and 8 exhibit additional perforations in the tube (9) that were not illustrated in FIG. 1.

Poussin discloses the gas tube (9) is generally perforated. (Col. 7, 11.17-18). The cap (10), that covers the gas tube (9), functions to seal the gas tube (9) with respect to the charge. (Col. 7, 11. 19-22). Poussin also discloses that the cap (10) is immersed in the catalyst bed. (Col. 7, 11.20-22). Based on the teachings of Poussin, a person of ordinary skill in the art would have reasonably expected that the cap (10) would cover perforations in the gas tube (9) that extend above the catalyst bed and any perforations that extended above the catalyst bed would have been sealed by the cap (10). One of ordinary skill in the art would have reasonably expected that the cap (10) would have sealed the gas tube (9) from the charge whether or not perforations extend above the catalyst bed. "For obviousness under §103, all that is required is a reasonable expectation of success." *In re O'Farrell*, 853 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

Additionally with regard to the limitation of the free space having a thickness great enough to allow said passage without causing an additional pressure drop, though Poussin does not disclose the size of the free space, it is held that one of ordinary skill in the art would have found it prima facie obvious to arrive at an optimum or workable range of the size of the free space by mere routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.").

Additionally, change in size and shape is not patently distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

With regard to claim 2, Poussin discloses essentially the same invention as the instant claim but fails expressly to disclose that the unperforated wall (10) extends for a portion comprising between 5% and 50% of the length of the gas outlet wall (9). At the time of the invention, it would have been obvious to one skilled in the art to extend the unperforated wall for a distance comprising between 5% and 50% of the length of the gas outlet wall. The motivation would have arisen as a design choice. The length of the unperforated wall can also be considered a result-effective variable. The wall could be extended while monitoring the extent of undesired bypassing of the catalyst by the process stream. When the bypassing has dropped to an acceptable level, the wall is long enough.

With regard to claim 3, Poussin discloses essentially the same invention as the instant claim but fails expressly to disclose that the free space has a thickness of between 0.5 and 10 cm.

Art Unit: 1764

At the time of the invention it would have been obvious to one skilled in the art to construct the free space with a thickness of between 0.5 and 10 cm. The motivation would have arisen as a design choice. The thickness can also be considered a result-effective variable. The thickness could be extended while monitoring the performance of the system. When the performance reaches an acceptable level, the thickness can be considered adequate.

With regard to claim 4, Poussin discloses the unperforated wall (10) being supported by the gas outlet wall (9); (Figure 1).

With regard to claim 5, Poussin discloses a gas outlet wall (9) having a diameter smaller than the diameter of the gas inlet wall (7) and of the unperforated wall (10) (Figure 1). Poussin further discloses the unperforated wall (10) being supported by a gas-tight horizontal baffle (see Figure 1), which protrudes above the upper end of the gas outlet wall (9) and rests on the gas outlet wall (9).

With regard to claim 6, Poussin discloses a synthesis reactor comprising: an external shell (Figure 1 (33)), and a catalytic bed (Figure 1 (31)) provided with a perforated inlet wall (Figure 1 (7)) and a perforated outlet wall (Figure 1 (9)) in the shell. The apparatus comprises an unperforated cylindrical wall (Figure 1 (10)) coaxial to the gas outlet wall (9) in the catalytic bed (31), the unperforated cylindrical wall (10) extending from an upper end of the gas outlet wall (9) along a portion of the outlet wall for a predetermined length in the catalytic bed, such that once the catalyst is loaded within the catalytic bed (31), at least a portion of the unperforated cylindrical wall (10) remains below the upper level reached by the catalyst (see col. 7, lines 19-21: the unperforated cylindrical wall is immersed in the catalyst bed). Poussin further discloses defining a free-space between the gas outlet wall (9) and the unperforated wall (10) (see, for

Art Unit: 1764

example, FIGs. 1 and 6). Poussin also discloses providing a cap for closing the free-space between the unperforated wall (10) and the gas outlet wall (9), in proximity of the upper end of the gas outlet wall, preventing a bypass of the catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor.

Although Poussin does not expressly disclose that the unperforated cylindrical wall (10) covers the perforations of the gas outlet wall (9), it is noted that the figures of Poussin are schematic and do not demonstrate the sole locations of perforations in the tube. For instance, FIGs. 2 and 8 exhibit additional perforations in the tube (9) that were not illustrated in FIG. 1.

Poussin discloses the gas tube (9) is generally perforated. (Col. 7, 11.17-18). The cap (10), that covers the gas tube, functions to seal the gas tube with respect to the charge. (Col. 7, 11. 19-22). Poussin also discloses that the cap (10) is immersed in the catalyst bed. (Col. 7, 11.20-22). Based on the teachings of Poussin, a person of ordinary skill in the art would have reasonably expected that the cap (10) would cover perforations in the gas tube (9) that extend above the catalyst bed and any perforations that extended above the catalyst bed would have been sealed by the cap (10). One of ordinary skill in the art would have reasonably expected that the cap (10) would have sealed the gas tube (9) from the charge whether or not perforations extend above the catalyst bed. "For obviousness under §103, all that is required is a reasonable expectation of success." *In re O'Farrell*, 853 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

Additionally with regard to the limitation of the free space having a thickness great enough to allow said passage without causing an additional pressure drop, though Poussin does not disclose the size of the free space, it is held that one of ordinary skill in the art would have



Art Unit: 1764

found it prima facie obvious to arrive at an optimum or workable range of the size of the free space by mere routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.").

Additionally, change in size and shape is not patently distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

With regard to claim 7, Poussin discloses essentially the same invention as the instant claim but fails expressly to disclose that the unperforated wall (10) extends for a portion comprising between 5% and 50% of the length of the gas outlet wall (9). At the time of the invention it would have been obvious to one skilled in the art to extend the unperforated wall for a distance comprising between 5% and 50% of the length of the gas outlet wall. The motivation would have arisen as a design choice. The length of the unperforated wall can also be considered a result-effective variable. The wall could be extended while monitoring the extent of undesired bypassing of the catalyst by the process stream. When the bypassing has dropped to an acceptable level, the wall is long enough.

With regard to claim 8, Poussin discloses essentially the same invention as the instant claim but fails expressly to disclose that the free space has a thickness of between 0.5 and 10 cm. At the time of the invention it would have been obvious to one skilled in the art to construct the free space with a thickness of between 0.5 and 10 cm. The motivation would have arisen as a design choice. The thickness can also be considered a result-effective variable. The thickness

Art Unit: 1764

could be extended while monitoring the performance of the system. When the performance reaches an acceptable level, the thickness can be considered adequate.

With regard to claim 9, Poussin discloses the unperforated wall (10) being supported by the gas outlet wall (9); (see Figure 1).

With regard to claim 10, Poussin discloses a gas outlet wall (9) having a diameter smaller than the diameter of the gas inlet wall (7) and of the unperforated wall (10); (see figure 1).

Poussin further discloses the unperforated wall (10) being supported by a gas-tight horizontal baffle (see Figure 1), which protrudes above the upper end of the gas outlet wall (9) and rests on the gas outlet wall (9).

#### **(10) Response to Argument**

Appellant's arguments presented under the heading "A. Rejection of claims 1-10 under 35 U.S.C. §112, first paragraph", beginning on page 12 of the brief, have been fully considered. However, the arguments are moot because the rejection has been withdrawn.

Appellant's arguments presented under the heading "B. Rejection of claims 1-10 under 35 U.S.C. 103(a) over Poussin (US 5,202,097)", beginning on page 13 of the brief, have been fully considered. However, the arguments are not found persuasive.

#### Claims 1 and 6

Regarding the rejection of method claim 1 and apparatus claim 6, Appellant (at page 14, lines 4-16) argues,

"... Poussin fails to teach or suggest, at least, at least a portion of said unperforated cylindrical wall 15 remains below the upper level 13 reached by said catalyst, as recited in claim 1.

Rather, as disclosed by Poussin, no portion of the metal cap 10 remains below the upper level of the catalyst mass once the latter is loaded in the catalyst bed 7. In Poussin, the catalyst mass 31 is confined in the annular catalytic compartments (indicated in figure 1 by oblique lines), which clearly lies below the catalyst bed covering 19. The catalyst 31 is covered on top by this flexible covering 19, which is in turn covered by a layer of inert balls 11, 12, 13... Furthermore, Poussin's cap 10 is merely immersed in the layer of inert balls 11, 12, 13, not the catalyst mass 31. These inert balls serve no catalytic purpose and cannot be compared or confused with catalyst particles. In particular, in all the figures, it is clearly shown that the cap never extends below the catalyst cover layer 19, i.e., the cap 10 remains above the upper level reached by the catalyst mass 31..."

The Examiner respectfully disagrees. In particular, Poussin specifically discloses the contrary, in column 7, lines 19-22, wherein,

"Above the stack, a metal cap (10) surrounding the upper part thereof, is immersed in the catalyst bed and seals the stack with respect to the charge." (emphasis added).

Thus, at least a portion of the unperforated cylindrical wall inherently remains below the upper level reached by the catalyst, due to the metal cap (10) being immersed in the catalyst bed.

Appellant further argues that in the figures, "it is clearly shown that the cap never extends below the catalyst cover layer 19." However, the Examiner respectfully disagrees. For instance, FIG. 1 appears to illustrate at least a minor portion of the metal cap (10) extending below the level defined by the flexible catalyst bed covering (19).

Furthermore, it is noted that the reactor of Poussin is structurally capable of being configured such that at least a portion of the unperforated cylindrical wall of cap (10) remains below the upper level reached by the catalyst bed (31), since the catalyst cover layer (19) is merely composed of flexible strips of fabric material, and the selection of a particular amount of

Art Unit: 1764

catalyst to be loaded into the reactor (and thus, the upper level to be reached by the catalyst within the bed, relative to the base of the cap (10)) is a matter of design choice. For instance, looking to the cap design of FIG. 4, the bottom edge of the metal cap (10) appears to be aligned with the level of the catalyst cover layer (19). However, the material of the catalyst cover layer (19) is highly flexible, and therefore, inherently capable of adjusting upwards, to a level above the bottom edge of the cap (10), and upwards further to the level defined by a locking ring (22). In addition, the level defined by the catalyst cover layer (19) is not fixed relative to the base of the cap (10), since "... a deformation of the catalyst bed surface as a result of a possible compression of the catalyst can be compensated by the sliding of the fabric applied to the cap or the stack beneath the ring." (see, for example, column 7, line 61 to column 8, line 16).

#### Claims 3 and 8

Regarding the rejection of method claim 3 and apparatus claim 8, Appellant (at page 16, line 17, to page 17, line 5) argues,

"... with regard to arriving at Appellants claim recitations via routin[e] optimization, Appellants respectfully submit that this modification is improper because the recited free space has not been recognized as a result effective variable. In order to optimize a variable, such as the recited free space, it must be recognized that the variable "achieves a recognized result." ... Accordingly, this basis of the rejection is erroneous because no portion of Poussin recognizes that this space achieves any result. To the contrary, Poussin teaches that cap 10 may be sufficiently tight with respect to the gas and effluent (col. 9, lines 39-41). Thus, Poussin, which is silent on any purpose for a free space, indicates that the space need not even exist. Therefore, because the recited free space is not recognized as achieving any result, the rejection based on routine optimization is in error."

The Examiner respectfully disagrees. Firstly, in response to Appellant's argument that Poussin fails to disclose a spacing between the cap (10) and the gas tube (9), the Board decision on Appeal No. 2003-1700 (beginning at the last paragraph on page 6) states that,

"... Several figures exemplify that a space is present between the tube 9 and cap 10. (For example, see figures 1 and 6). Further, Poussin discloses that the gas tube 9 can be covered by a grid 30 that would provide a space between the cap 10 and the tube 9. (Col. 7, ll. 17-18; Fig. 2)." (with emphasis added).

Secondly, although not specifically discussed by Poussin, one having ordinary skill in the art at the time the invention was made would have recognized the thickness of the space, between the cap (10) and the perforated tube (9), to comprise a result effective variable, wherein the recognized result is an increase or decrease in the fluid flow resistance of the gases flowing from the catalyst bed (31) to the centrally located perforated tube (9). Clearly, by minimizing the spacing between the cap (10) and the perforated tube (9), the fluid flow resistance of the gas flowing from the catalyst bed (31) to the central perforated tube (9) would increase, due to a decrease in the amount of space available for the fluid to flow from the catalyst bed (31) to the perforations located on the tube (9). Alternatively, by increasing the spacing between the cap (10) and the perforated tube (9), the fluid flow resistance of the gas flowing from the catalyst bed (31) to the central perforated tube (9) would decrease, due to an increase in the amount of space available for the fluid to flow from the catalyst bed (31) to the perforations located on the tube (9). This is a well-known principle of fluid mechanics. And furthermore, it is well known in the art of fluid mechanics that this fluid flow resistance is proportional to, and contributes to, the overall pressure drop exhibited by the system.

A large pressure drop would be undesirable in the method and apparatus of Poussin, because an excessive amount of pressure drop at the perforated tube (9) could cause the catalyst particles in the packed bed to be crushed against the tube. Also, a large pressure drop would contribute significantly to the operational expenses, because the cost of the power required to circulate the gases, for overcoming the pressure drop caused by the passage of the gas through the catalyst bed (31) and the perforated tube (9), would increase.

Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate thickness (such as the claimed thickness) for the space between the cap (10) and the perforated tube (9) in the method and apparatus of Poussin, in order to minimize the fluid flow resistance, and hence, the overall pressure drop, in the system, while maintaining the cap (10) to be sufficiently tight with respect to the gas and effluent, because where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Appellant (at page 17, lines 11-20) further argues,

“... the present invention is the provision of a free space between the unperforated cylindrical wall and the gas outlet perforated cylindrical wall, having a thickness great enough not to cause additional pressure drop to the portion of reacted gases leaving the catalyst mass and passing through said free space. (Specification, p. 11, lines 25-32).

This distinguishing feature is extremely significant to the present invention since it contributes in an essential way to solve the technical problem of the present invention that is the problem of avoiding reactants to bypass the catalyst mass in case of an incomplete filling of the catalyst bed, maintaining at the same time the fluid dynamics characteristics of a completely filled catalytic bed. Persuasive evidence of such relevance can be for instance be clearly deduced from the present description, at page, 9, lines 26-34 in combination with page 10, lines 13-15.”

Art Unit: 1764

The Examiner respectfully disagrees. Appellant argues that the claimed thickness of the free space between the cap (10) and the gas tube (9) (i.e., between the perforated gas outlet wall and the unperforated wall, as claimed) is “extremely significant”, and hence, “critical” to the invention. However, it is noted that the specification (e.g., page 10, lines 11-15) merely sets forth that the claimed thickness is, at best, a preferred limitation. In particular, the specification states that,

“Moreover, the free-space 16 is preferably so defined so as to have a thickness comprised between 1 and 5 cm. In any case, the thickness of free-space 16 must be great enough to allow gas crossing without causing an additional pressure drop.” (emphasis added).

As such, and without more, the claimed thickness cannot be considered “critical”. Accordingly, one having ordinary skill in the art would have routinely optimized the thickness of the spacing between the cap (10) and the perforated tube (9) in order to obtain the desired level of fluid flow resistance or pressure drop through the system, *In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980), and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Appellant (page 18, lines 10-17) further argues,

“... the attention of the Examiner should be drawn to the fact that we are not at all in a situation wherein the closest prior art is concerned with a same technical problem and suggest a similar solution with respect to the claimed invention, wherein the only difference is the identification of optimal or workable ranges by routine experimentation.

Poussin is not concerned with the technical problem of the present invention nor does it aim to solve a similar problem. This feature is thus totally ignored according to

Art Unit: 1764

the teaching of Poussin and in the absence of an incentive or teaching to do so the skilled person would have not found it without the exercise of an inventive skill.”

The Examiner respectfully disagrees. Although Poussin may not specifically discuss the issues associated with minimizing the pressure drop within system, the fact that Appellant has recognized another advantage that would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious, *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

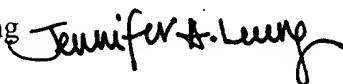
**(11) Related Proceeding(s) Appendix**

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner’s answer are provided herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jennifer A. Leung

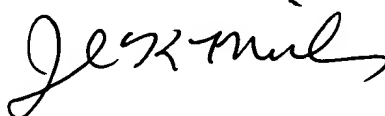


Conferees:

Glenn Caldarola



Jennifer Kolb-Michener





The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

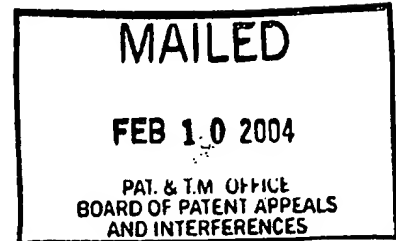
Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex Parte GIUSEPPE GUARINO  
and ERMANNO FILIPPI

Appeal No. 2003-1700  
Application 09/231,791



HEARD: January 08, 2004

Before WARREN, WALTZ and JEFFREY T. SMITH, Administrative Patent Judges.

JEFFREY T. SMITH, Administrative Patent Judge.

Decision on appeal under 35 U.S.C. § 134

Applicants appeal the decision of the Primary Examiner finally rejecting claims 1 to 10.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 134.

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<sup>1</sup> Claims 1 and 6 on appeal were amended by an after final amendment, paper no. 16, filed September 20, 2002.

## BACKGROUND

The invention is directed to a heterogeneous synthesis reactor and a method for forming such a reactor. Claims 1 and 6 which are representative of the invention are reproduced below:

1. A method for in-situ modernization of a heterogeneous synthesis reactor, including an external shell comprising at least a catalytic bed (6) provided with a gas inlet perforated cylindrical wall (7) and a gas outlet perforated cylindrical wall (8), said method comprising the steps of:

providing an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed, so as to define a free-space (16) between the perforated gas outlet wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-space (16);

providing means for closing an upper end of said free-space (16) between the unperforated wall (15) and the gas outlet wall (8), in proximity of the upper end (8a) of the wall (8), preventing thereby a bypass of said catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor, respectively.

6. A heterogeneous synthesis reactor comprising:

an external shell (2);

at least a radial or axial-radial catalytic bed (6), provided with a gas inlet perforated cylindrical wall (7) and a gas outlet perforated cylindrical wall (8), extended in said shell (2);

characterized in that it further comprises in said catalytic bed:

an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed (6), so as to define a free space (16) between the perforated gas outlet wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-space (16);

means for closing said free-space (16) between the unperforated wall (15) and the gas outlet wall (8), in proximity of the upper end (8a) of the latter, preventing thereby a bypass of said catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor respectively.

#### ***CITED PRIOR ART***

As evidence of unpatentability, the Examiner relies on the following prior art:

Poussin

5,202,097

Apr. 13, 1993

#### ***THE REJECTIONS***

The Examiner rejected claims 1, 4-6, 9 and 10 under 35 U.S.C.

§ 102(b) as unpatentable over Poussin; and claims 2, 3, 7 and 8 under 35 U.S.C.

§ 103(a) as unpatentable over Poussin. (Answer, pp. 3-6).

#### ***OPINION***

Upon careful review of the respective positions advanced by Appellants and the Examiner, we find that the Examiner has failed to carry the burden of

Appeal No. 2003-1700  
Application 09/231,791

establishing a *prima facie* case of anticipation, *see Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). Consequently, we will not affirm the rejection of the claims under § 102. However, under the provisions of 37 CFR § 1.196(b) we enter a new ground of rejection of claims 1-10 under § 103(a). Our reasons follow.

The rejection under § 102

In order for a claimed invention to be anticipated under 35 U.S.C. § 102, all of the elements of the claim must be found in one reference. *Scripps*, 927 F.2d at 1576, 18 USPQ2d at 1010.

Appellants argue that the unperforated cylindrical wall of Poussin, 10, “does not extend along a perforated portion of the gas outlet wall 9. The perforations appear to be shown schematically in the gas outlet wall 9 as only being located within the catalytic bed 31. The upper and lower ends of the gas outlet wall 9 are not provided with perforations since the upper and lower ends of the gas outlet tube are not surrounded or in contact with the catalytic bed. Thus, the cylindrical wall portion of the cap 10 clearly does not extend along a perforated portion of the gas outlet wall for a predetermined length in said catalytic bed” (Brief, pp. 6-7).

In response the Examiner states “the figures are schematic only and not pictorial, therefore the perforations illustrated in figure 1 do not demonstrate the

Appeal No. 2003-1700  
Application 09/231,791

sole locations of perforations in the tube. This is also demonstrated by the additional perforations illustrated in figures 2 and 8.” (Answer, p. 6).

In essence the Examiner is arguing that the gas outlet wall 9 inherently contains perforations covered by the cap 10. However, *inherency* cannot be established by probabilities or possibilities. *See In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981). As stated in *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (quoting from *In re Oelrich*, 666 F.2d at 581, 212 USPQ at 326), “[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient [to establish inherency]” (emphasis in original). Under these circumstance, we cannot conclude that the examiner has met the minimum threshold of establishing inherency under 35 U.S.C. § 102.

#### New Rejections under § 103

Notwithstanding the Poussin reference failure to expressly disclose that the cap 10 covers perforations of the gas outlet tube 9, the reference is suitable for rejecting the claimed subject matter under 35 U.S.C. § 103(a). As stated above, the Examiner determined that the figures of Poussin are schematic and do not demonstrate the sole locations of perforations in the tube. The Examiner has also correctly determined that figures 2 and 8 exhibit additional perforations in the tube 9

that were not illustrated in figure 1. We note that Appellants have not disputed the Examiner's determinations by arguments in a supplemental brief.

Poussin discloses the gas tube 9 is generally perforated. (Col. 7, ll. 17-18). The cap 10, that covers the gas tube 9, functions to seal the gas tube 9 with respect to the charge. (Col. 7, ll. 19-22). Poussin also discloses that the cap 10 is immersed in the catalyst bed. (Col. 7, ll. 20-22). Based on the teachings of Poussin, a person of ordinary skill in the art would have reasonably expected that the cap 10 would cover perforations in the gas tube 9 that extend above the catalyst bed and any perforations that extended above the catalyst bed would have been sealed by the cap 10. One of ordinary skill in the art would have reasonably expected that the cap 10 would have sealed the gas tube 9 from the charge whether or not perforations extend above the catalyst bed. "For obviousness under § 103, all that is required is a reasonable expectation of success." *In re O'Farrell*, 853 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

Appellants argue that Poussin does not have the spacing between the cap 10 and gas tube 9 and the space appearing in figure 1 is "simply to show that two separate elements are provided." (Brief, p. 7). The disclosure in the Poussin reference does not support Appellants' arguments. Several figures exemplify that a space is present between the tube 9 and cap 10. (For example see figures 1 and 6).

Appeal No. 2003-1700  
Application 09/231,791

Further, Poussin discloses that the gas tube 9 can be covered by a grid 30 that would provide a space between the cap 10 and the tube 9. (Col. 7, ll. 17-18; Fig. 2).

The Examiner rejected claims 2, 3, 7 and 8 under 35 U.S.C. § 103(a) as unpatentable over Poussin. (Answer, pp. 5-6). We affirm.

Appellants have not separately argued the patentability of claims 2, 3, 7 and 8. Appellants stated that "there is absolutely nothing within the disclosure of Poussin which would suggest modifications to one skilled in the art which would meet the limitations of claims 1 and 6 as well as dependent claims 2-5 and 7-10." (Brief, p. 9). The Examiner has presented arguments regarding the patentability of claims 2, 3, 7 and 8. Since Appellant has failed to specifically challenge the Examiner's rejection, we presume that they are in agreement with the Examiner. Thus, for the reasons presented above regarding the independent claims and the reasons presented by the Examiner we will uphold the rejection. Since we affirm this rejection based on our discussion of the § 103 rejection above, we deem this affirmance of claims 2, 3, 7 and 8 to be a new ground of rejection.

### ***CONCLUSION***

In summary, we reverse the Examiner's rejection of claims 1, 4-6, 9 and 10 under 35 U.S.C. § 102(b) as unpatentable over Poussin. Under the provisions of 37 CFR § 1.196(b) we reject claims 1 to 10 under 35 U.S.C. § 103(a) as unpatentable

Appeal No. 2003-1700  
Application 09/231,791

over Poussin including our "affirmance" of the rejection of claims 2, 3, 7 and 8 which we have denominated as a new ground of rejection..

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) (1997). 37 CFR § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

Regarding the new ground of rejection, 37 CFR § 1.196(b) provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .



Appeal No. 2003-1700  
Application 09/231,791

### Time for taking action


No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

***AFFIRMED-IN-PART; 37 CFR § 1.196(b)***

  
CHARLES F. WARREN  
*Administrative Patent Judge*

THOMAS A. WALTZ  
*Administrative Patent Judge*

**BOARD OF PATENT  
APPEALS AND  
INTERFERENCES**

  
JEFFREY T. SMITH  
*Administrative Patent Judge*

Appeal No. 2003-1700  
Application 09/231,791

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